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Krzysztof Szczygielski

Innovation Policy in Poland

The pursuit of efficient innovation policy requires vision, institutional capabilities, and adequate government funding. It also assumes that there are businesses willing to innovate and – in this respect – to cooperate with government agencies. In a middle-income country, especially in one that has been engaged in a range of social and economic reforms, the conditions for successful innovation policy are particularly hard to meet, and Poland is a good example of this difficulty. However, Poland is also a story of clear progress in innovation policy formulation and implementation, one that has been vastly aided by EU structural policy.

THE EARLY TRANSITION DIFFICULTIES

As noted by Woodward et al. (2012), for more than a decade after 1989, science, technology, and innovation (STI) policy in Poland was low on the priority lists of policymakers, who were occupied first with key economic reforms and then with EU accession. Three specific aspects of STI policy illustrate this negligence well.

First, the institutional setting underpinning direct innovation support for firms took a long time to develop. The first specialized government actor, the Agency for Technique and Technology (ATT), was created in 1996, and it remained a minuscule organization (a staff of fewer than 40 people, and an annual budget of EUR 1–2 million, Donocik 2010) until 2002, when it was absorbed by the then formed Polish Agency for Enterprise Development (PARP). That agency was designed mainly to promote entrepreneurship and SMEs, but it also became the chief actor in innovation policy implementation in the first ten years following Poland's EU accession in 2004.

Second, before the EU accession, the scope of innovation support for firms was minimal. According to data from the Community Innovation Survey for 1998–2000, the first edition in which Poland participated, the share of medium and large manufacturing firms that received innovation support in Poland was 2.88 percent (the reason we look at medium and large firms is that they are better surveyed in CIS). The respective numbers for some other Central and Eastern European countries were: 8.45 percent in the Czech Republic, 12.77 percent in Hungary, and 9.61 percent in Slovenia.

The third aspect that illustrates the failure of STI policy after 1989 is the problem of public R&D institutes. The network of R&D institutes inherited from the Communist period mirrored the industrial structure of the Polish economy before 1989. Economic transformation in Poland came with the deepest structural

changes in the region (Marczewski and Szczygielski 2007) and it involved the privatization or bankruptcy of large state-owned enterprises (SOEs), which had been the main partners of R&D institutes during Communism. Although the private sector expanded rapidly, it consisted mainly of SMEs that had neither the potential nor the interest to cooperate with R&D institutes in technology development (Woodward 2004). Policymakers failed to respond to the increasing mismatch between science and industry either by privatizing the R&D institutes together with “their” SOEs or reforming the R&D sector. The institutes continued to operate under the same legal framework as before (the 1985 act was revised several times but replaced only in 2010), and most of them relied mainly on modest block grants from the government (some even pursued activities not related to R&D, like renting their venues). While there were some cases of institutes that developed world-class R&D and maintained closed links to industry, these were an exception.

Importantly, these three specific areas are but some of the examples of how STI policy was marginalized in Poland in the 1990s and early 2000s. Other problems (some of which continue to this day) were: the severe underfunding of basic research, the unstable and discouraging tax policy, and the lack of coordination between government bodies relevant for the national innovation system.

THE POST-ACCESSION SHOCK

It is fair to say that Poland's accession to the European Union on May 1, 2004 marked a breakthrough for national innovation policy, and especially for direct aid for firms. Innovation support for companies, which was probably not more than a few million euros per year before 2004, increased to more than EUR 500 million in 2008 thanks to the EU's structural policy, and it reached more than EUR 1.3 billion in 2010 (Kapil et al. 2013). The fraction of (medium and large) firms that received public support of innovation quadrupled between the 1998–2000 and 2004–06 periods (Figure 1). The money was disbursed mainly in the form of grants and matching grants by different national and regional “operational programs” (OPs). Of these the most important was the “Innovative Economy” OP, which accounted for about 86 percent of all innovation-related funding. The European Union financed 85 percent of the programs, while the rest was provided by the Polish government.

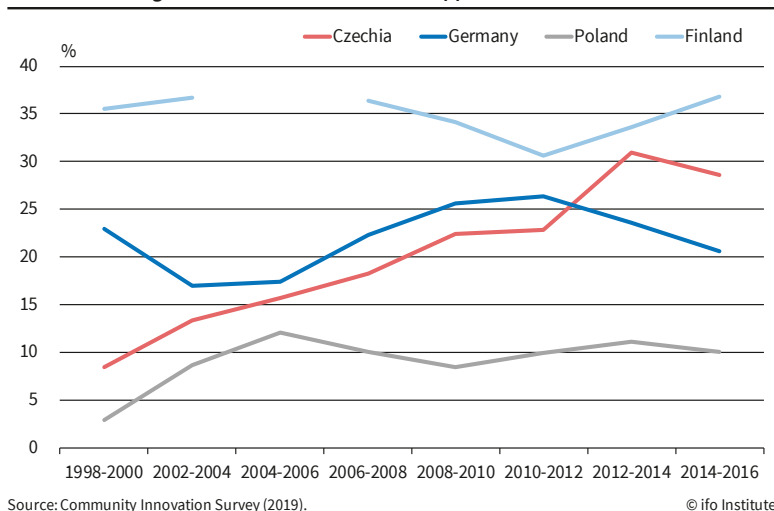
Faced with the challenge of spending the biggest innovation policy budget in the country's history, the policymakers played it safe. The priority was to maintain transparency and to avoid fraud while disbursing as much of the available funding as possible (Szczygielski et al. 2017). More than half of the money spent in 2004–10 funded the acquisition of machinery and equipment (also software and intellectual property rights to a small degree), while the rest was spent on



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Figure 1

Medium and Large Firms that Received Public Support for Innovation



R&D activities and concept development (Kapil et al. 2013). The funding procedures, however, were not designed to maximize the innovation effects of public support. As mentioned earlier, the main implementing agency (PARP) did not have technology development in its core mission.

Szczygielski et al. (2017) offered a comparative analysis of direct innovation support for firms in Poland and in Turkey, another middle-income country, but one where systematic innovation aid for firms started back in the mid-1990s. The analysis of the grant selection and evaluation processes in 2004–10 showed Turkey clearly ahead of Poland, where the assessment was initially a one-stage, document-based procedure, and tools like expert panels and on-site visits were virtually never implemented. The econometric analysis of the efficiency of government support revealed that while the grants for R&D activities contributed to better innovation performance on the part of Polish manufacturing firms, this was not the case with the EU-funded grants for physical and human capital upgrading. Thus, while the funding was much more generous in Poland, the support was more efficient and better targeted in Turkey.

THE NEW DEVELOPMENTS AND CHALLENGES AHEAD

While the 2004–10 period was characterized by an asymmetry between the increased innovation policy budget and limited government capabilities, it allowed the Polish public administration to accumulate knowledge on innovation policy planning and implementation. In 2007, the National Centre for Research and Development (NCBR) was formed, and by 2015 it took over from PARP responsibility for the bulk of innovation-related structural-policy programs. Currently, NCBR is the principal body responsible for funding applied R&D in firms, although PARP also continues to

offer some innovation aid for SMEs. Support is also offered by regional authorities, and, most recently, a new actor called the Polish Development Fund (PFR), which focuses on financing venture capital vehicles investing in early-stage development of technological innovations.

The grants from the main operational program under the current perspective (“Intelligent Development” OP) fund almost exclusively R&D activities (also some counseling services for SMEs). The program includes a horizontal scheme to which all firms can apply, a number of sectoral programs

developed in cooperation with the representatives of the industry, and an investment-fund-like instrument. In addition to the EU-funded initiatives, NCBR runs programs funded from the national budget, including strategic programs (e.g., in biomedicine and materials research), a scheme co-funding the launch of firm R&D labs, and several others. The project selection and assessment schemes have become much more elaborate over the years, and one can observe some degree of experimenting with different procedures (one- or two-step processes, pre-selection, various kinds of panels, etc.).

There have also been changes to the architecture of the R&D institute sector. After nearly 30 years of slow, mostly enforced, consolidation (between 2001 and 2017 the number of public institutes reduced from 232 to 113, cf. Woodward 2004, and Statistics Poland 2018), a radical change came in 2019, as 38 of the institutes were included in the newly created Łukasiewicz Research Network. The Network, named after the 19th-century innovator and oil-industry pioneer Ignacy Łukasiewicz, has the ambition of becoming the Polish counterpart to Germany’s Fraunhofer Society or Finland’s VTT. Time will tell the extent to which these aspirations can come true, but integrating the dispersed institutes into one organization is certainly an important step (although critics say the reform is incomplete, as member institutes continue to be separate, if not independent, legal bodies).

The establishment of the Łukasiewicz Network is one of the few accomplishments of the industrial strategy of the new cabinet that came to power in Poland in 2015 (Ministry of Development 2017). While several other initiatives were announced – most notably a rapid expansion of the Polish electric automobile industry – these projects have not been successful as of yet (cf. Woźniak 2019). However, the government created a new actor, the Polish Development Fund (PFR), a state-owned joint-stock company, that, in addition to

assuming shares in some firms and banks, offers innovation-related support for companies by activating VC investments. Also, starting 2019, a generous R&D tax credit and an IP box scheme (a reduced tax rate for IP income) were introduced.

FINAL REMARKS

Three decades after the collapse of Communism, Polish innovation policy is a mixed picture. Largely neglected after 1989, it received adequate funding thanks to the EU accession. Ever since, institutions have been built and programs developed that resemble the architecture of the innovation support system in Western Europe. The percentage of firms that receive public support increased substantially as compared to the pre-accession period (although then it stagnated, frustrating innovation policymakers). Business expenditure on R&D as a share of GDP, while far behind that of old EU member states, has increased markedly, too (Figure 2).

On the other hand, some major problems remain unaddressed. Innovation policy lacks co-ordination, both in terms of instruments offered by different agencies and, more broadly, in terms of strategies applied by different ministries. Universities remain underfunded, ranking low in international comparisons and finding it hard to produce world-class research or compete for talents. The fiscal rules for businesses are subject to almost continuous changes.

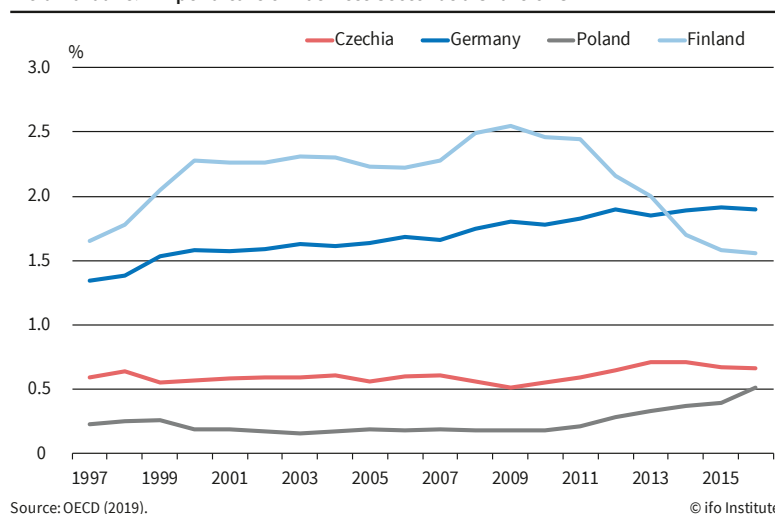
Perhaps the biggest dilemma is, however, how to shape innovation policy in a middle-income country that has been catching-up at an impressive pace (Piątkowski 2018), but where this catch-up process has so far not been based on the development of new technologies. This question deserves to be addressed by policymakers and academics alike.

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Figure 2

Intramural R&D Expenditure of Business Sector as a Share of GDP



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